Chemistry for the IB Diploma Programme





Guiding Question revisited

How does the periodic table help us to predict patterns and trends in the properties of elements?

In this chapter, we have seen how the periodic table highlights the patterns and trends in the properties of the elements.

The periodicity in the physical and chemical properties of elements is due to the periodicity of their electron configuration.

Metals are on the left of the table, non-metals are on the upper right-hand side and metalloids are in a diagonal area between.

The columns of the table are called groups and the rows are called periods. Elements in the same group show similar chemical properties as they have the same number of electrons in their valence energy level.

The group 1 or alkali metals react with water to produce hydroxides and hydrogen. Melting points decrease down the group and metal reactivity increases down the group. They react by losing electrons.

The group 17 elements or halogens are reactive non-metals. Melting and boiling points increase down the group and non-metal reactivity decreases down the group. They react by gaining electrons.

Group 1 and group 17 elements are on opposite sides of the table and show opposite trends in reactivities and melting points.

The group 18 elements or noble gases are unreactive as they have complete outer energy levels.